

# We claim as Our Invention<sup>12</sup>:

## Patent Claims

1. Method for recognizing a predetermined vocabulary in spoken language with a computer,

- a) whereby a digitalized voice signal is determined from the spoken language;
- b) whereby a signal analysis is implemented on the digitalized voice signal, feature vectors for describing the digitalized voice signal proceeding therefrom;
- c) whereby a global search ensues for imaging the feature vectors onto a language present in modelled form, whereby phoneme [sic] of the language is described by a modified hidden Markov model and each status of the hidden Markov model is described by a probability density function;
- d) whereby the probability density function is adapted by modification of the vocabulary in that the probability density function is split into a first probability density function and into a second probability density function if the drop of an entropy value lies below a predetermined threshold;
- e) whereby the global search offers a recognized word sequence.

2. Method for recognizing a predetermined vocabulary in spoken language with a computer, particularly according to claim 1,

- a) whereby a digitalized voice signal is determined from the spoken language;
- b) whereby a signal analysis is implemented on the digitalized voice signal, feature vectors for describing the digitalized voice signal proceeding therefrom;
- c) whereby a global search ensues for imaging the feature vectors onto a language present in modelled form, whereby phoneme [sic] of the language is described by a modified hidden Markov model and each status of the hidden Markov model is described by a probability density function;

- d) whereby the probability density function is adapted by modification of the vocabulary in that the probability density function is split into a first probability density function and into a second probability density function;
- e) whereby the modification of the vocabulary is implemented at the run time of the method;
- f) whereby the global search offers a recognized word sequence.

3. Method according to claim 1 or 2, whereby the modification of the vocabulary is caused by the addition of a word to the vocabulary or whereby pronunciation habits of a speaker change.

4. Method according to one of the preceding claims, whereby the first probability density function and the second probability density function respectively comprise at least one Gaussian distribution.

5. Method according to claim 4, whereby identical standard deviations, a first average of the first probability density function and a second average of the second probability density function are determined for the first probability density function and for the second probability density function, whereby the first average differs from the second average.

6. Method according to one of the preceding claims, whereby the splitting is multiply implemented.

7. Arrangement for recognizing a predetermined vocabulary in spoken language comprising a processor unit that is configured such that

- a) a digitalized voice signal can be determined from the spoken language;
- b) a signal analysis can be implemented on the digitalized voice signal, feature vectors for describing the digitalized voice signal proceeding therefrom;
- c) a global search ensues for imaging the feature vectors onto a language present in modelled form, whereby phoneme [sic] of the language can be described by a modified hidden Markov model and each status of the hidden Markov model can be described by a probability density function;
- d) the probability density function is adapted by modification of the vocabulary in that the probability density function is split into a first

probability density function and into a second probability density function if the drop of an entropy value lies below a predetermined threshold;

- e) the global search offers a recognized word sequence.

8. Arrangement for recognizing a predetermined vocabulary in spoken

5 language comprising a processor unit that is configured such that

- a) a digitalized voice signal can be determined from the spoken language;  
b) a signal analysis can be implemented on the digitalized voice signal, feature vectors for describing the digitalized voice signal proceeding therefrom;

- 10 c) a global search ensues for imaging the feature vectors onto a language present in modelled form, whereby phoneme [sic] of the language can be described by a modified hidden Markov model and each status of the hidden Markov model can be described by a probability density function;  
d) the probability density function is adapted by modification of the  
15 vocabulary in that the probability density function is split into a first probability density function and into a second probability density function;  
e) the modification of the vocabulary is implemented at the run time of the method;  
f) the global search offers a recognized word sequence.

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